

Response to Office Action mailed December 21, 2004
U.S. Application No. 10/628,214

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

- 1 (original) A system of two or more valves wherein said valves operate over a designated pressure interval and are arranged to actuate performance of a sequenced set of events by one or more downhole tools with the application of pressure to said valves.
- 2 (original) The system of Claim 1 wherein one or more of said valves is a cartridge valve.
- 3 (original) The system of Claim 2 wherein at least one of said cartridge valves is a single purpose cartridge valve.
- 4 (original) The system of Claim 1 wherein one or more of said valves is an annular-based valve.
- 5 (original) The system of Claim 1 wherein said set of events are selected from the group consisting of packer actuation, pressure equalization, wash-fluid flow actuation, perforating device actuation, slips actuation, wire line actuation, electrical device actuation, measurement device actuation, sampling device actuation, deployment means actuation, downhole motor actuation, generator actuation, pump actuation, communication system actuation, fluid injection, fluid removal, heating, cooling, bridge plug actuation, frac plug actuation, optical device actuation, BHA release actuation, drilling operation, cutting operation, expandable tubing operation, expandable completion operation, and mechanical device actuation.
- 6 (original) The system of Claim 1 wherein said valves operate one or more remote electrical devices that communicate with a command base via a wireline.

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7 (original) The system of Claim 1 wherein said valves operate one or more remote electrical devices that are powered at a remote location without requiring wireline support.

8 (original) The system of Claim 1 wherein at least one of said valves is adapted to allow fluid to flow therethrough in only one direction.

9 (original) The system of Claim 1 wherein at least one of said valves is adapted to cause fluid flow therethrough to cease when said fluid flow reaches a predefined rate or imposes a predefined pressure upon said valve.

10 (original) The system of Claim 1 wherein at least one of said valves is adapted to allow fluid to flow therethrough when said fluid flow imposes a predefined pressure upon said valve.

11 (original) The system of Claim 1 comprising at least one screen adapted to filter solids having predefined dimensions from fluids before said fluids flow through one or more of said valves.

12 (original) The system of Claim 1 comprising at least one burst disk adapted to allow fluid flow out of one or more of said downhole tools under one or more predefined conditions.

13 (original) The system of Claim 1 comprising one or more orifices adapted to limit flow of fluid through said system to a predefined flowrate.

14 (original) The system of Claim 1 comprising one or more orifices adapted to limit flow of fluid through one or more of said valves to a predefined flowrate.

15 (original) A method for perforating and treating multiple intervals of one or more subterranean formations intersected by a wellbore, said method comprising the steps of:

(a) deploying a bottom-hole assembly ("BHA") from a tubing string within said wellbore, said BHA having a perforating device and a sealing mechanism;

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(b) using said perforating device to perforate at least one interval of said one or more subterranean formations;

(c) positioning said BHA within said wellbore and activating said sealing mechanism so as to establish a hydraulic seal below said at least one perforated interval;

(d) pumping a treating fluid down the annulus between said tubing string and said wellbore and into the perforations created by said perforating device, without removing said perforating device from said wellbore;

(e) releasing said sealing mechanism; and

(f) repeating steps (b) through (e) for at least one additional interval of said one or more subterranean formations;

wherein at least one of said steps is actuated by a system of valves that operates over a designated pressure interval and is arranged to actuate performance of said step with the application of pressure to said valves.

16 (original) The method of Claim 15 wherein additional steps are performed, said steps being selected from the group consisting of washing debris from around said sealing mechanism, equalizing pressure across said sealing mechanism, and establishing electrical communication through said sealing mechanism.

17 (currently amended) An apparatus for actuating performance of a sequenced set of events by one or more downhole tools with the application of pressure over a designated pressure interval comprising a combination of two or more valves arranged ~~as~~ within sub-assemblies wherein one sub-assembly communicates with another sub-assembly through pressure isolating connections.

18 (original) The apparatus of Claim 17 wherein said valves are cartridge valves housed within said sub-assemblies.

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19 (original) The apparatus of Claim 17 wherein pressure communication is established both between said valves and between said sub-assemblies by said pressure isolating connections.

20 (original) The apparatus of Claim 17 wherein wireline communication is provided through said sub-assemblies.

21 (original) The apparatus of Claim 17 wherein at least one of said valves is adapted to allow fluid to flow therethrough in only one direction.

22 (original) The apparatus of Claim 17 wherein at least one of said valves is adapted to cause fluid flow therethrough to cease when said fluid flow reaches a predefined rate or imposes a predefined pressure upon said valve.

23 (original) The apparatus of Claim 17 wherein at least one of said valves is adapted to allow fluid to flow therethrough when said fluid flow imposes a predefined pressure upon said valve.

24 (original) The apparatus of Claim 17 comprising at least one screen adapted to filter solids having predefined dimensions from fluids before said fluids flow through one or more of said valves.

25 (original) The apparatus of Claim 17 comprising at least one burst disk adapted to allow fluid flow out of one or more of said downhole tools under one or more predefined conditions.

26 (original) The apparatus of Claim 17 comprising one or more orifices adapted to limit flow of fluid through one or more of said valves to a predefined flowrate.